

REMARKS

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested.

Rejection of Claims 14-15, 27-28 and 31-32 Under 35 U.S.C. §103(a)

The Office Action rejects claims 14-15, 27-28 and 31-32 under 35 U.S.C. §103(a) as being unpatentable over Herre (U.S. Patent No. 5,781,888) ("Herre") in view of Theunis (U.S. Patent No. 5,943,367) ("Theunis"). Applicants respectfully traverse this rejection and submit that for several reasons these claims are patentable and in condition for allowance.

Applicants first submit that one of skill in the art would not have sufficient motivation to combine these references.

To establish a *prima facie* case of obviousness, the Examiner must meet three criteria. First, there must be some motivation or suggestion, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to combine the references. Second, there must be a reasonable expectation of success, and finally, the prior art references must teach or suggest all the claim limitations. The Examiner bears the initial burden of providing some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." MPEP 2142.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). MPEP 2143.01.

Furthermore, if the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not. MPEP 2142.

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art, and all teachings in the prior art must be considered to the extent that they are in analogous arts. Where the teachings of two or more prior art references conflict, the examiner must weigh the power of each reference to suggest solutions to one of ordinary skill in the art, considering the degree to which one reference might accurately discredit another. *In re Young*, 927 F.2d 588, 18 USPQ2d 1089 (Fed. Cir. 1991). MPEP 2143.01.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

With these principles in mind, Applicants shall analyze each reference for their suggestive power relative to suggestion to one of skill in the art to combine Herre with Theunis. The Office Action asserts that Herre fails to disclose whether the switching indicated by the prediction flag referenced in column 7 is between a first filter and a second filter or only between

a first filter and a pulse code modulation. Applicants respectfully submit that what is taught in Herre is simply that the prediction flag, as it toggles between off and on, merely indicates the use of differential pulse code modulation (DPCM) coding (when the prediction flag is on) and no DPCM coding (when the prediction flag is off). Applicants note that Figure 1 of Herre illustrates the difference between the analysis filter bank 12 and the PCM encoder 16. These are clearly different features within a device and Applicants note that column 3, lines 52-55 explain that the encoding of spectral values is performed using a quantization/coding scheme based on differential pulse code modulation (DPCM) that operates on the filterbank outputs in frequency. In other words, a signal is input into the analysis filterbank which causes the audio signal to be decomposed into spectral coefficients which are then input into the PCM encoder for coding.

On pages 3 and 4 of the Office Action, it appears that the Examiner seeks to characterize the prediction flag switch as possibly teaching switching between a first filter and pulse code modulation. However, when the teachings of column 7 relative to Figure 6, are analyzed it becomes clear that the prediction flag simply toggles between DPCM coding and no DPCM coding in which case the standard PCM coding is applied as shown in the Figures 1 and 2. For example, column 7, line 20, discusses Figure 6 which implements portions of a perceptual audio coder with open loop prediction (see Figure 4) and a single prediction filter. As is shown in Figure 6, the standard spectral coefficient values are obtained by running the analysis filter bank in step 61. Step 62 involves setting a target frequency range and prediction filter order. Step 63 involves calculating the prediction filter coefficients, reflection coefficients and expected prediction gain. Then the analysis involves determining whether the gain is greater than the threshold in step 64. And if yes, then steps 65, 66 and 67 occur and the prediction flag is set to on such that DPCM coding is used. If the gain is not greater than the threshold, then step 68 occurs and the prediction flag is set to off and step 69 involves then quantizing and coding the

spectral coefficients where the quantizing and coding process occurs. As can be seen, the prediction flag simply has nothing to do with switching between a first and a second filter, but rather switches one and off the DPCM coding which is a process that occurs multiple steps after the operation of the analysis filter bank 61.

Applicants clarify this characterization within the Office Action because it has been used as the foundation for the asserted suggestion that it would be obvious to combine these references. The Office Action continues to argue that Theunis suggests to one of skill in the art to incorporate his teachings related to source coding and switching filter banks into the process associated with the prediction flag of Herre. Applicants respectfully traverse this analysis and simply note that the switch 26 of Figure 1, which switches between various portions of the filterbank 24, simply has nothing to do with whether DPCM coding occurs. This switch operates at an entirely different step in the entire process. Accordingly, it would not be obvious to one of skill in the art to incorporate the filterbank switching of Theunis with the prediction on and off flag of Herre.

Additionally, the Office Action asserts that the teachings of Theunis regarding switching signal can enable the use of Theunis' time varying filter banks which can be adapted to the input signal and result in improved coding properties. Thus, the Office Action asserts that it would be obvious to one of skill in the art to switch between the two filters and source coder as taught by Theunis with a prediction flag for indicating an encoding technique of transmitting filter coefficients of Herre for the benefit of adapting characteristics of a filterbank to an input signal to be decoded resulting in improved coding properties. Applicants respectfully traverse this conclusion and provide further analysis regarding why one of skill in the art would not have sufficient motivation to combine these references. We note, starting in column 7 of Herre at line

66, that he explains that using an open loop encoder embodiment of his invention is shown in Figure 3 and Figure 6:

“a straight forward temporal noise shaping effect can be achieved for certain conventional block transforms including the Discrete Fourier Transform (DFT) or the Discrete Cosine Transform (DCT), both well-known to those of ordinary skill in the art. If, for example, a perceptual coder in accordance with the present invention uses a critically subsampled filterbank with overlapping windows...the resultant temporal noise shaping is subject to the time domain aliasing effects inherent in the filterbank.....Thus it is advantageous to choose a filterbank window that exhibits only a small overlap between subsequent blocks so that the temporal aliasing effect is minimized. An appropriate strategy in the encoder can, for example, adaptively select a window with a low degree of overlap for critical signals of very transient character while using a wider window type for stationary signals providing a better frequency selectivity.” (Emphasis added.)

Applicants respectfully assert that what is suggested in this reference is that certain conventional block transforms may be improved through the open loop encoder embodiment of the invention of Herre. In other words, rather than suggesting a different type of filterbank such as the time dependent filterbank of Theunis, the suggestion of Herre is that conventional block transforms may be improved using his open loop encoder invention. Therefore, rather than suggesting that switching between the two filter in the filterbank of Theunis would be desirable to be incorporated into Herre, Herre rather teaches that his invention is more appropriately used with a conventional filterbank with the only adjustments being choosing filterbank windows that exhibit only small overlaps between subsequent blocks so that the temporal aliasing effect is

minimized. Thus, Applicants have provided an additional reason why one of skill in the art would not have motivation or suggestion to combine these references.

Other portions of the references further support Applicants argument. For example, in Herre, column 1, starting at line 36, he teaches that in general the structure of a perceptual audio coder for monophonic audio signals is described as input samples being converted into subsampled spectral representation using various types of filterbanks and transforms such , for example, the well-known modified discrete cosine transform (MDCT), polyphase filterbanks or hybrid structures. Again, these similar conventional MDCT or other conventional filterbanks that are based on time domain aliasing cancellation (TDAC) are referenced at the beginning of column 8 as the preferred filterbanks with which the principles of his invention apply. In other words, Applicants have established that there is an express teaching by Herre that his invention applies to conventional filterbanks such that one of skill in the art, if they were presented with the time dependent filterbank of Theunis, rather than immediately having a motivation or suggestion to combine these references would necessarily have to do further analysis to determine whether the modified time dependent filterbank of Theunis would advantageously work with the perceptual noise shaping taught by Herre inasmuch as he suggests that his invention is specifically tailored to the conventional filterbank. The Theunis filterbanks may have to be modified or changed from its basic principle of being a time-dependent filterbank, which further reduces or eliminates any suggestion that it be combined with Herre. For these reasons, Applicants respectfully submit that by a preponderance of the evidence, one of skill in the art would lack sufficient motivation or suggestion to combine these references and claims 14, 15, 27, 28, 31 and 32 are patentable and in condition for allowance.

Rejection of Claims 16-17, 29-30 and 33-34 Under 35 U.S.C. §103(a)

The Office Action rejects claims 16-17, 29-30 and 33-34 under 35 U.S.C. §103(a) as being unpatentable over Herre in view of Theunis and further in view of Oikawa (U.S. Patent No. 5,264,846) ("Oikawa"). Claims 16 and 17 each depend from claim 14 and recite further limitations therefrom. Claims 29 and 30 each depend from claim 27. And claims 33 and 34 each depend from claim 31 and recite further limitations therefrom. Inasmuch as the two primary references of Herre and Theunis should not be combined, Applicants further submit that these dependent claims are patentable as well.

CONCLUSION

Having addressed all rejections and objections, Applicants respectfully submit that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited. If necessary, the Commissioner for Patents is authorized to charge or credit the **Law Office of Thomas M. Isaacson, LLC, Account No. 50-2960** for any deficiency or overpayment.

Respectfully submitted,

Date: January 30, 2007

By: 

Correspondence Address:

Thomas A. Restaino
Reg. No. 33,444
AT&T Corp.
Room 2A-207
One AT&T Way
Bedminster, NJ 07921

Thomas M. Isaacson

Attorney for Applicants
Reg. No. 44,166
Phone: 410-286-9405
Fax No.: 410-510-1433